

Claims

1. A fluid sealing mechanism for preventing leakage of fluid being supplied into a fluid pressure pocket (5) defined between slide surfaces (3) (4) respectively formed on oppositely facing sides of an object (1) and a support member (2) for supporting the object (1), characterized in that

the slide surface (4) of the support member (2) has a ring groove (7) for fittingly receiving an elastic ring (6) for preventing leakage of fluid, and the elastic ring (6) is fitted along with a blocking ring (6), which is disposed outside the elastic ring (6), in the ring groove (7), with the blocking ring (6) fitted on the elastic ring (6) for blocking the elastic ring (6) from coming out from the ring groove (7), and

when fluid supplied into the fluid pressure pocket (5) has reached a required pressure, the blocking ring (8) is, along with the elastic ring (6), brought into press contact with the slide surface (3) of the object (1) so as to block the coming-out of the elastic ring (6).

2. The fluid sealing mechanism according to claim 1, characterized in that the blocking ring (8) has an inner circumference whose upper edge is provided with a coming-out blocking portion (8a) that is formed into a radially inwardly curved shape so as to be lockingly engaged with the elastic ring (6) around an outer circumferential edge thereof through pressure contact for prevention of a radially outward deformation of the outer circumferential edge of a portion of the elastic ring (6), which portion contacting the object (1).

3. A fluid sealing mechanism for preventing leakage of fluid supplied into a fluid pressure pocket (5) defined between slide surfaces (3) (4) respectively formed on oppositely facing sides of an object (1) and a support member (2) for supporting the object (1), characterized in that

the support member (2) has a ring groove (7) for fittingly receiving an

elastic ring (6) for preventing leakage of fluid, and the elastic ring (6) has an outer circumference whose upper edge is provided with a hardened portion (6a) integrally formed therewith for blocking the elastic ring (6) from coming out from the ring groove (7), and

5 when fluid supplied into the fluid pressure pocket (5) has reached a required pressure, an upper surface of the hardened portion (6a) is brought into press contact with the slide surface (3) of the object (1) in surface-to-surface contact, and a side surface of the hardened portion (6a) is brought into press contact with an outer inside wall surface (7a) of the ring groove (7) in
10 surface-to-surface contact, thereby blocking the coming-out of the elastic ring (6).

4. A fluid sealing mechanism for preventing leakage of fluid supplied into a fluid pressure pocket (5) defined between slide surfaces (3) (4) respectively formed on oppositely facing sides of an object (1) and a support member (2) for supporting the object (1), characterized in that

15 the slide surface (4) of the support member (2) has a ring groove (7) for fittingly receiving an elastic ring (6) for preventing leakage of fluid, and the ring groove (7) has an outer inside wall surface (7a) whose upper portion is provided with a coming-out blocking portion (7b) that is lockingly engaged with an upper
20 edge of an outer circumference of the elastic ring (6) so as to block the elastic ring (6) from coming out from the ring groove (7) at the time when fluid supplied into the fluid pressure pocket (5) has reached a required pressure.

5. A heavy load support system, characterized in that it comprises the fluid sealing mechanism of any one of claims 1 to 4,

 the support member (2) for supporting the object (1), and
25 a connection means (37) for connection with a fluid supply means (9) that supplies fluid into the fluid pressure pocket (5) defined between slide surfaces (3) (4) of the object (1) and the support member (2).

6. The heavy load support system according to claim 5, characterized in that a fluid supply stopping means (C) for stopping supply of fluid into the fluid pressure pocket (5) at the time when a given clearance has been created between the slide surfaces (3) (4) is provided.

5 7. The heavy load support system according to claim 5, characterized in that a pressure control valve (P) for stopping supply of fluid into the fluid pressure pocket (5) at the time when fluid being supplied into the fluid pressure pocket (5) has reached a required pressure is provided.

10 8. The heavy load support system according to claim 5, characterized in that a fluid supply stopping means (C) for stopping supply of fluid into the fluid pressure pocket (5) at the time when a given clearance has been created between the slide surfaces (3) (4) is provided, and a pressure control valve (P) for stopping supply of fluid into the fluid pressure pocket (5) at the time when fluid being supplied into the fluid pressure pocket (5) has reached a required pressure is
15 provided.

 9. The heavy load support system according to any one of claims 5 to 8, characterized in that a pressure adjusting means (11) for adjusting the pressure of the fluid pressure pocket (5) to a required pressure is disposed in a fluid supply passage (5a) to the fluid pressure pocket (5) so that the fluid supply passage (5a) to
20 the fluid pressure pocket (5), which passage contains the pressure adjusting means (11), constitute a closed fluid passage.

 10. The heavy load support system according to any one of claims 5 to 9, characterized in that a fluid jack (12) that is actuated in a vertical direction is disposed above or below the fluid pressure pocket (5).